O W N E R ' S   M A N U A L

PARASOUND

HCA-806A Six Channel High Current Power Amplifier

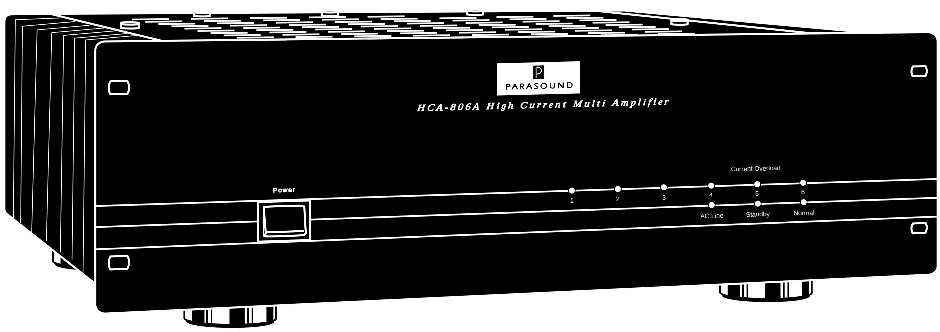


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IMPORTANT SAFETY INSTRUCTIONS

The lightning flash with the arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of “dangerous voltage” inside the product that may constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance instructions in the literature accompanying the product.

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

1. **Read Instructions —** Read all the safety and operating instructions before operating this product.
2. **Retain Instructions —** Retain safety and operating instructions for future reference.
3. **Heed Warnings** — Adhere to all warnings on the product and in the operating instructions.
4. **Follow Instructions —** Follow all operating and use instructions.
5. **Cleaning** — Unplug this product from the wall outlet before cleaning. Use a damp cloth for cleaning. Clean the outside of the product only.
6. **Attachments —** Do not use attachments that are not recommended by the product manufacturer; they may be hazardous.
7. **Water and Moisture —** Do not use this product near water.
8. **Accessories —** Do not place this product on an unstable cart or stand. The product may fall causing bodily injury and damage to the product. A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart to overturn.
9. **Ventilation** — Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. *This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided.*
10. **Power Sources** — Operate this product only from the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your dealer or local power company. This product is equipped with a three-prong grounding plug. This plug will only fit into a grounding power outlet. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding plug.
11. **Power Cord Protection** — Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.
12. **Lightning—** Unplug the unit from the wall outlet for added protection during a lightning storm and when it is left unattended and unused for long periods of time. This will prevent damage to the product due to lightning and power line surges.
13. **Overloading** — Do not overload wall outlets or extension cords. This can result in a fire or electric shock.
14. **Inserting Objects into Unit** - Never push objects of any kind into this product through any openings; they may touch dangerous voltage points or short out parts that could result in fire or electric shock.
15. **Servicing** — Do not attempt to repair or service this product yourself. Opening or removing covers may expose you to dangerous voltage and other hazards. Refer all servicing to qualified service personnel.
16. **Damage Requiring Service —** Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions: a) If the power-supply cord or plug is damaged. b) If liquid has been spilled into the product. c) If the product has been exposed to rain or water. d) If the product does not operate normally by following the operating instructions. e) If the product has been dropped or damaged in any way. f) If the product exhibits a distinct change in performance.
17. **Replacement Parts —** When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer. Unauthorized substitutions may result in fire, electric shock, and other hazards.
19. **Safety Check —** Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.
20. **Wall or Ceiling Mounting** — Mount the product to a wall or ceiling only as recommended.
21. **Heat —** The product should be situated away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.

HCA-806A Front and Rear Panel Controls

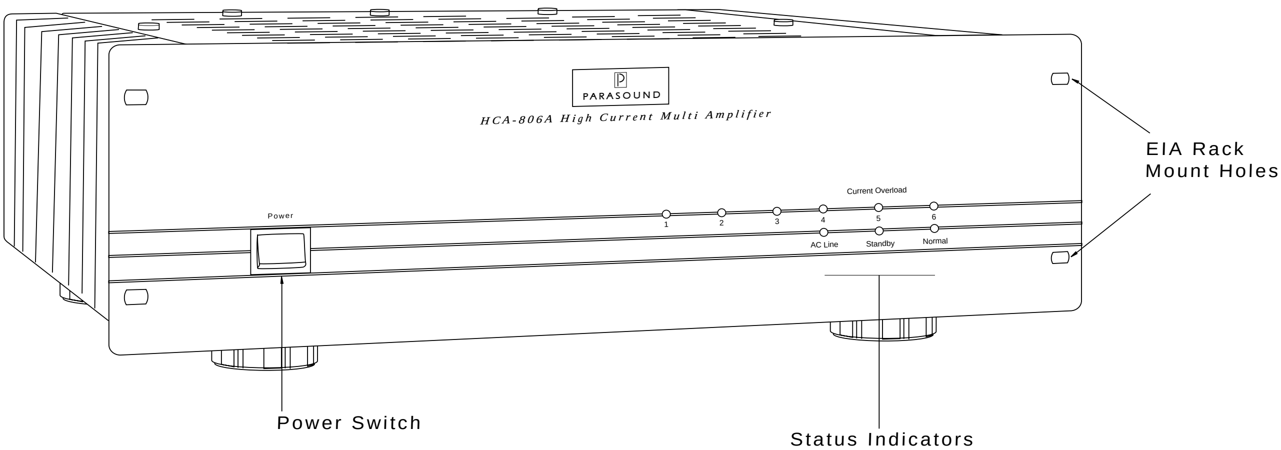


Figure #1 HCA-806A Front Panel Controls

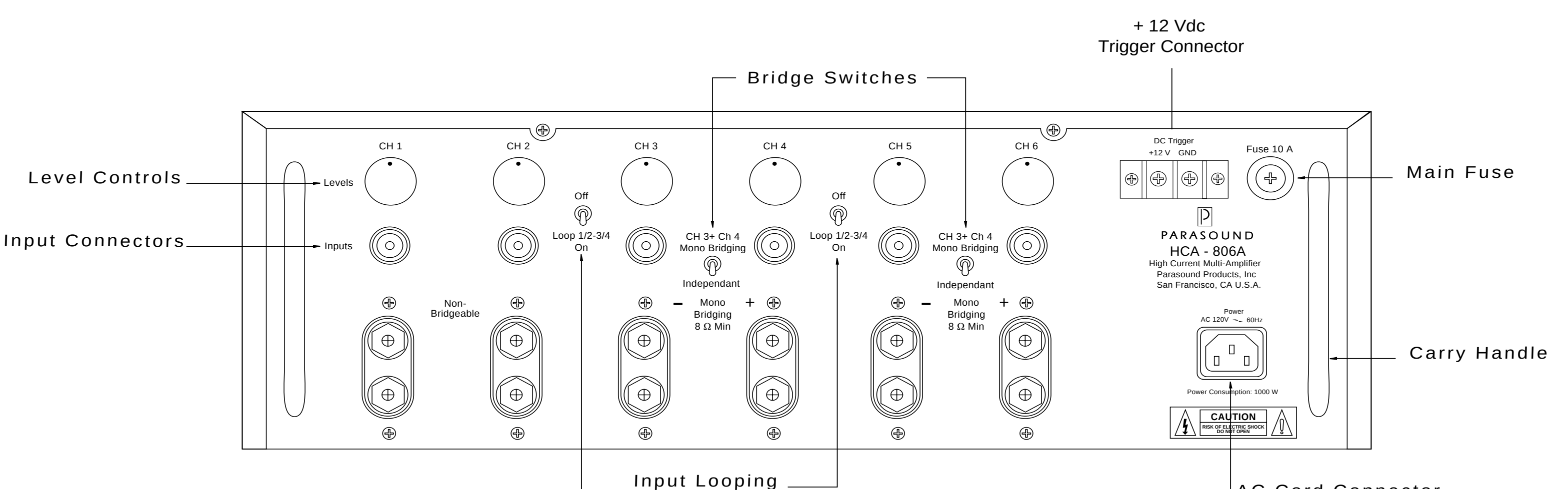


Figure #2 HCA-806A Front Panel Controls

Introduction

Congratulations on your purchase of this precision audio component and thank you for your selection of Parasound. Please take a few moments to read these instructions so that you may fully understand the capabilities of your new Parasound power amplifier.

Unpacking Your Amplifier

Carefully unpack your amplifier and remove all the enclosed accessories. Be sure to inspect the unit for any possible shipping damage. If you see any, contact your Parasound Dealer immediately. Save all the packing material in case you need to ship the amplifier for repair. Before you proceed, find the serial number located on the rear panel of your amplifier and record it here for reference:

Serial #____________________ Date of Purchase____________________

Installing and Rack Mounting Your Amplifier

Place your amplifier away from heat sources such as air ducts and radiators. Always mount the amplifier horizontally and make sure that your cabinet or shelf can support its weight. It is best to provide a separate shelf for your amplifier rather that stacking it directly above or below your other components.

Both the HCA-806A occupies three rack spaces (5 1/4") in a standard 19 inch equipment rack. Be sure to use heavy duty mounting bolts to and nylon shoulder washers on both sides of the faceplate to avoid scratching the amplifier's front panel and to help prevent ground loops.

Contact Middle Atlantic Products at (201) 839-1011 to obtain any rack mounting hardware you may need. When rack mounting equipment, have someone help support the unit while you bolt the component to the rack rails.

Ventilation Requirements for Your Amplifier

To insure safe and reliable operation, it is very important that the amplifier has *plenty of ventilation* to prevent overheating and automatic shut down from its thermal protection circuitry. Please observe the following ventilation guidelines when installing your amplifier in a cabinet or other enclosed area:

1) If you are not using a fan, allow *at least* six inches on each side and above the amplifier, and *do not* close off the front with a cabinet door or panel.
2) If you are enclosing the amplifier within an equipment cabinet, use a fan to draw in cool air and exhaust warm air. Two vent holes are required: one for intake and one for exhaust.
3) Do not place the amplifier on carpeting that will obstruct the air flow into the bottom of the amplifier chassis and heatsinks.
4) Avoid stacking components. If you do stack components, you *must* use a fan to circulate the warm air that will quickly become trapped between them when they are powered on.

Input Connections and Switch Settings for the HCA-806A

Refer to Figure #2

Six Channel Operation

The six channel mode of your HCA-806A can power the six speakers required for a complete home theater: Front left and right, surround left and right, center channel, and subwoofer. Connect each output from your surround processor to the corresponding input connector of your HCA-806A.

If you are using your HCA-806A in the six channel mode, we suggest the following progression of channel priorities. This is an easy way to remember what you connected to each channel for setting levels or troubleshooting:

Recommended Input Connections for Six Channel Operation

Use INPUTS 1 and 2 for your front left and right channels
Use INPUTS 3 and 4 for your left and surround right channels
Use INPUTS 5 for your center channel
Use INPUTS 6 for your passive subwoofer

Switch Settings for Six Channel Operation:

Leave LOOP 1/2 > 3/4 and LOOP 1/2 > 5/6 switches in their OFF positions and both MONO BRIDGE switches in their SEPARATE positions.

Four and Five Channel Operation

In addition to six channel operation, you can use your HCA-806A in a variety of other configurations depending upon your needs. Below are examples of four and five channel operation.

Input Connections for Four Channel Operation

Use INPUTS 1 and 2 for your front left and right channels
Use INPUTS 3 and 4 bridged mono for your center channel
(Connect the center output of your processor to INPUT 4 only)
Use INPUTS 5 and 6 bridged mono for your subwoofer
(Connect the subwoofer output of your processor to INPUT 6 only.)
Use an additional amplifier for your surround channels

Switch Settings for Four Channel Operation:

Leave LOOP 1/2 > 3/4 and LOOP 1/2 > 5/6 switches in their OFF positions
Set the MONO BRIDGE switch for channel 3/4 in the MONO BRIDGING position
Set the MONO BRIDGE switch for channel 5/6 in the MONO BRIDGING position

Input Connections for Five Channel Operation

Use INPUTS 1 and 2 for your Front left and right channels
Use INPUTS 3 and 4 for your left and right surround channels
Use INPUTS 5 and 6 bridged mono for your center channel
(Connect the center output of your processor to INPUT 6 only)

Settings for Five Channel Operation:

Leave LOOP 1/2 > 3/4 and LOOP 1/2 > 5/6 switches in their OFF positions
Select the MONO BRIDGE switch for channel 3/4 in the SEPARATE position
Select the MONO BRIDGE switch for channel 5/6 in the MONO BRIDGING position
Use a powered subwoofer or an additional amplifier for a passive subwoofer

Multi-Zone Stereo Operation

Refer to Figure #2

You can switch your HCA-806A to reproduce a single stereo source through up to three pairs of stereo channels via input cables connected to channels 1 and 2 input jacks only. This permits a neater and less confusing hookup. It eliminates the requirement for two or four “Y” adapters in order to split your preamplifier’s single pair of stereo outputs to feed the 3 pairs of HCA-806A power amplifier input jacks.

When you switch the LOOP 1/2 > 3/4 Switch for channels 3 and 4 to its ON position, these channels receive the internally paralleled looped input signals from the same cables connected to the inputs of channels 1 and 2. Input 1 loops over to channel 3. Input 2 loops over to channel 4.

The Loop 1/2 > 5/6 Switch for Channels 5 and 6 offers the same internal paralleling convenience. Input 1 loops over to Channel 5. Input 2 loops over to Channel 6.

Speaker Connections to the HCA-806A

Refer to Figure #2

Five-Way Binding Posts

The five-way binding posts on the rear panel of your HCA-806A will accept banana or dual banana plugs, most 1/4" spade lugs, or up to AWG 12 bare solid or stranded wire.

Polarity

It is important to observe correct speaker connection polarity to prevent phase cancellation. One side of the speaker wire will have some sort of mark, either printing, a raised ridge on the insulation or a different color of conductor. This permits you to know which wire you had connected to the + and which to the — speaker terminals so you can do exactly the same at the power amplifier terminals. Polarity is marked separately for both stereo and bridged connections.

Banana Plugs

Banana plugs offer the most convenient connection to the speaker terminals. They also have a large amount of surface contact into the speaker terminal. For these reasons, we recommend the use of banana plugs in most applications. However, you may want to use the “gas tight” connection provided by spade lugs or bare wire.

Spade Lugs

If you prefer to use speaker cable with spade lugs, make sure you do not permit the lug to rotate as the terminal is tightened. Do not overtighten the speaker terminal onto the spade lug. The limited warranty does not cover terminals that are sheared off as a result of overtightening.

Bare Wire

If you use bare wire without plugs, be sure to strip off only enough insulation so the bared wire fits into the hole that runs sideways through the terminal’s metal shaft. Before inserting the wire, twist all its strands tightly to prevent strays that could cause a short circuit between + and — terminals or adjacent channel terminals. If you have a soldering iron, it is a good idea to “tin” the bare wire with solder to keep it from unraveling and to prevent oxidation.

Mono Bridging — Channels 3+4 and 5+6

When you bridge channels 3+4 and/or 5+6, your speakers are connected to the bridged channels differently. You bridge by using the red + terminals of the adjacent channel pairs only. Note that bridged connections are made horizontally rather than vertically and that the upper red + terminals have separate markings for bridging. In the bridged mode, channel 4 (and/or 6) output is positive and channel 3 (and/or 5) output is negative.

Unbridged speaker connections can be made with standard 3/4" (19 mm) dual banana plugs. However internal space required by the high current protection relays prevent the bridged terminal pair spacing to be close enough to accept 3/4" (19 mm) dual banana plugs. Single banana plugs, spade lugs, or bare wire termination are required.

Select MONO BRIDGING (up) or SEPARATE (down) as marked on the rear panel. Switch the power off before moving either of these switches. If you accidentally leave either switch in the mono bridge position, the stereo output will be very weak and distorted.

For bridged operation of channels 3+4, use only the input jack and level control for channel 4.
For bridged operation of channels 5+6, use only the input jack and level control for channel 6.

Minimum Impedance Precautions

You may connect loudspeakers with a 4 Ω or 8 Ω nominal impedance for unbridged operation. Your HCA-806A is capable of driving speakers with occasional impedance dips well below 2 Ω. However, Lower nominal impedance loads are not recommended and may cause overheating.

The HCA-806A is designed for a minimum 8 Ω nominal impedance for each speaker connected to bridged channels 3+4 or 5+6. Use of lower impedance at high listening levels may cause overheating or trigger one of the amplifier's protection circuits.

These restrictions result from the mathematics of the bridging circuitry. In the bridge mode each channel of the amplifier functions for only the + or — half of the musical waveform. Thus, each channel "sees" only half of the speaker’s impedance. Use of an 8 Ω speaker means that the load for each channel is 4 Ω. For a 4 Ω speaker, the resulting load is only 2 Ω.

Use Good Speaker Wire

For best results, you should never use speaker wire thinner than 16 AWG and keep the length of speaker wire as short as possible to maintain a high damping factor and avoid deteriorating bass response.

AC Power Connections and Audiophile-Grade AC Cord

Before you attach the AC cord, make sure the HCA-806A power switch is in its off position. Your HCA-806A includes a detachable audiophile-grade AC cord. We recommend that you use only this cord and make a direct connection to the AC wall outlet.

Do not connect the amplifier to the accessory AC outlet on your preamplifier. The current draw exceeds the ratings of most preamplifier’s power switches and power cords and could cause premature failure of the switch.

DC Trigger Connection

This connector provides a way to trigger your amplifier on with an external DC voltage source ranging from + 9 Vdc to +12 Vdc. With the main power switch on the off (down) position, the amplifier can be turned on with voltage from any external DC source such as the +12 Vdc trigger from the Parasound P/SP-1500. Since it is optically coupled, the DC trigger only requires 15 mA of current to activate the circuitry and turn on the amplifier.

Operating Your HCA-806A

Power Switch

Manual Turn On

Press the upper side to turn the unit on manually; press the lower side to turn the unit off.

Automatic Turn On

When the power switch is in the off position, the power amplifier can be turned on with an external DC voltage applied at the DC trigger connector on the rear panel. (See above)

AC Line LED

The AC line LED on the front panel of your amplifier will illuminate whenever AC is present at the AC connector. This LED indicates that the AC cord is connected and power is applied to the amplifier.

Standby/Operation LEDs

The Standby LED will come on red whenever you first turn the unit on. It will light for about four to five seconds while the amplifier circuits are stabilizing before the six protection relays start to energize. At this time the red LED will turn off and the green Operate LED will come on to signal normal operation. It will also light up red whenever there is a short circuit or fault which triggers the protection circuits. Whenever the red LED illuminates, the unit will not pass a signal. If the red Standby LED lights up during operation it could indicate: 1.) that more DC is present than its servos can handle, 2.) a short circuited speaker line, or 3.) possible internal fault. Once the problem has been corrected, the protection circuits will automatically reset. Turn the unit off for at least 10 minutes while you check your connections, then try again. If the red LED continues to glow, contact your Dealer, Installer or Parasound Technical Service for further advice.

Current Overload LEDs

The current overload LEDs for channels 1 through 6 will only illuminate if the unit is driven continuously at or past its maximum current capacity. These LEDs will indicate overload of the power supply just before the onset of audible distortion. In virtually all imaginable listening situations, these LEDs will rarely illuminate.

Level Controls

Each channel has a separate input level control. The HCA-806A will sound best with its level controls set to maximum, where they are effectively out of the audio signal path. However, if your preamplifier has very high gain, and its volume control cannot track properly for left-right channel balance near its minimum position, it may be necessary to reduce the input level control settings on the HCA-806A. We have deliberately located the controls on the rear panel, so they can be set once and forgotten.

Maintaining your HCA-806A

Your HCA-806A requires no periodic maintenance and has no user serviceable parts inside. Do not remove the top cover to avoid risk of electric shock. To keep it clean use only a soft cloth and never use any solvents or abrasives. Fingerprints may be removed with a soft cloth moistened only with a few drops of window cleaner or water.

Fuse

The HCA-806A has an external fuse which may blow as a result of an internal fault condition. This protects the unit from possible damage to internal parts. Never replace this fuse with a larger value. Substitution of a larger fuse may create serious stress or damage to internal parts and will void your warranty.

In Case of Trouble

If you suspect a problem with this unit, first recheck all your connections. If only one channel is inoperative, the trouble may be caused by another component or even a defective hookup cable. However, if the same channel is at fault when you reverse the Left and Right channel pair cables to your HCA-806A (turn it off before moving wires), it may indicate trouble within the power amplifier itself. We suggest you contact your authorized Parasound Dealer or Installer, or call Parasound Technical Service if you suspect a problem. We may be able to suggest other diagnostic tests you can easily perform yourself and which will save you a lot of trouble.

If it is determined that the HCA-806A should be returned to Parasound for inspection and possible servicing, you must first call or write to obtain a Return Authorization number. You will also be asked to repack the unit in its original packing and both of its cardboard cartons for proper protection in transit.

Units that arrive without the correct Return Authorization number, without a suitable shipping carton or evidence of improper internal packing will be refused. We cannot accept collect shipments. After repair under warranty, the unit will be returned to you prepaid. If we found no problem with the unit, we will return the unit with collect charges for return shipping charges.

Special Features

- Massive 1.2 kVA Power Transformer
- 90,000 uF Computer-grade Capacitors in the Power Supply
- Multiple Polystyrene Film Bypass Capacitors in the Power Supply
- Cascode Class A Input Stages with Matched J-FET Pairs
- Hand Picked Complementary Transistors in High Voltage Driver Stages
- 24 50 MHz, 15 Ampere Output Transistors, Beta-Matched Complementary Pairs
- Can be powered with external DC source
- Output Transistors Direct-Coupled to Speakers Without LRC Networks
- Linear Tracking, Instantaneous Acting DC Servos
- High-Bias Class A/AB Operation
- Gold-Plated Metal Structure RCA Input Jacks
- Multiple Temperature Sensors and Silver-Cadmium Relay Protection
- FR-4 Glass Epoxy Circuit Boards, Double-Sided for Precision
- Proprietary Quick-Settling Bias Circuits Obviates Warm-Up Period
- Custom Designed Audiophile-Grade AC Power Cord
- Configurable for Multi-Channel Home Theater, Multi-Zone Stereo, Biamp or Triamp Operation

Parasound HCA-806A Specifications

Continuous Power Output
> 80 watts RMS x 6, 20 Hz - 20 kHz, 8 Ω , all channels driven
> 120 watts RMS x 6, 20 Hz - 20 kHz, 4 Ω , all channels driven

Continuous Power Output - Bridged
> 180 watts RMS, 20 Hz - 20 kHz, 8 , each bridged channel, 3+4, 5+6

Current Capacity
30 amperes peak, per channel

Slew Rate
> 130 V/μsecond

Frequency Response
20 Hz - 120 kHz, +0/-3 dB

Total Harmonic Distortion
< 0.05% at full power
< 0.02% typical levels

IM Distortion
< 0.03%

TIM
Unmeasureable

Dynamic Headroom
> 2 dB

Interchannel Crosstalk
> 76 dB at 1 kHz
> 55 dB at 20 kHz

Input Impedances
50 kΩ per channel, without looping inputs 1/2 to Ch. 3/4 or Ch. 5/6
25 kΩ per channel, if looping inputs 1/2 to either Ch. 3/4 or Ch. 5/6
17 kΩ per channel, if looping inputs 1/2 to both Ch. 3/4 and Ch. 5/6

Input Sensitivity
1.0 V

S/N Ratio
> 110 dB, input shorted, IHF A-weighted

Damping Factor
> 800 at 20 Hz

Dimensions
19" wide x 5 1/4" high x 19" deep (6 1/8" high with feet)

Weight
50 lbs. net

Parasound Limited Warranty (USA only)

Your Parasound HCA-806 amplifier is covered by a limited warranty against defects in materials and workmanship for a period of two years from date of purchase. This warranty is provided by the Parasound dealer where the unit was purchased. Warranty repair will be performed only when your purchase receipt is presented to validate your ownership, date of purchase. and authorized status of the selling dealer. Defective parts will be repaired or replaced without charge by your authorized dealer's store or the location designated by your dealer that is authorized to service Parasound equipment. Additional information is available by calling or writing to the Service Manager, Parasound Products, Inc. at the address below. Charges for unauthorized service and transportation costs are not reimbursable under this warranty.

This warranty becomes void if the product has been damaged by alteration, misuse, accident or neglect. Alteration includes any removal, obscuration or defacement of its serial number. This warranty becomes void if unit has been connected or operated contrary to printed instructions. The warrantor assumes no liability for property damage or any other incidental or consequential damage whatsoever which may result from the failure of this product. Any and all warranties of merchantability and fitness implied by law are limited to the duration of this expressed warranty.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.

This warranty gives you specific legal rights and you may also have other rights which vary state by state.

PARASOUND

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